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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/510,228	10/13/2004	Nathan Altman	28569	6702

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MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215

EXAMINER	
PHAM, TAMMY T	

ART UNIT	PAPER NUMBER
2629	

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01/15/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/510,228	ALTMAN ET AL.	
	Examiner	Art Unit	
	TAMMY PHAM	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 October 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-102* is/are pending in the application.

4a) Of the above claim(s) *2-35,40-46,50-75,78,79 and 83-102* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 36-39, 47-49, 76-77, 80-82* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/10/2010*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Independent claims 1, 76 have been amended. Claims 2-35, 40-46, 50-75, 78-79, 83-102 have been withdrawn. Claims 1, 36-39, 47-49, 76-77, 80-82 are considered below.

Response to Arguments

2. Applicant's arguments filed 13 October 2009 have been fully considered but are not persuasive.

§ 103 Rejection

3. **In regards to independent claim 1,** Applicant submits *"Puma uses interference fringes, which are an intrinsic property of the continuous waveform... [i]t is stressed, fringes are an intrinsic property of the waveform and no data is modulated onto the waveform in Puma... [t]he presently claimed invention requires not merely a continuous waveform, but that data is modulated onto the continuous waveform. Modulation involves change of the waveform (Remarks 2-3)."* This is not persuasive.

4. First, Examiner would like to thank Applicant for the refresher on *"High-School physics (Remarks 3),"* however, despite the description of what occurs when two waveforms interfere, this is not found to be persuasive.

5. As both parties agree, Puma does teach of a continuous waveform. Whether or not the properties of this continuous waveform are *"intrinsic"* or not does not currently come into play due to the broad language of the claims. In other words, Applicant seems to argue that because

Puma teaches of intrinsic property of a waveform, Puma does not teach of a *"modulated waveform."* Even assuming that this interpretation is accurate, this argument is not persuasive. Applicant has failed to provide a clear description or definition of the term *"modulated"* in the original disclosure that prohibits the teachings of Puma to read on the claim language. In the recent arguments, Applicant submits that *"modulated is further defined in terms of being reversible [because the] waveform is decodable (Remarks 3)."* However, there is no explicitly or implicitly support for that modulated means reversible.

6. Since Applicant has failed to define or describe the term "modulated," Examiner will take the broadest, reasonable interpretation of the term. Using, the Merriam-Webster Online Dictionary as guidance, modulate is defined as *"to vary the amplitude, frequency, or phase of a carrier wave or a light wave for the transmission of information."* This is consistent with the teachings of Puma. Puma teaches of varying an ultrasonic carrier wave by imposing a low frequency signal upon it.

7. **In regards to independent claim 1,** Applicant further submits that *"what is extracted is intrinsic information that emerges from the forward and reflected carrier waves, that is to say interference fringes [since] ... all Puma is proposing is taking two featureless waveforms and measuring a phase difference between them, and this still constitutes obtaining the position from intrinsic properties of the waveform (Remarks 4)."* This is not persuasive.

8. If assuming that Applicant's interpretation is accurate, this interpretation continues to read upon the claim language since the claim language remains broad in what constitutes as *"modulated"* or *"extract."* As Applicant discussed, Puma diagnoses the property of a continuous

ultrasonic signal by studying the pattern of interference pattern created by superimposing another continuous ultrasonic signal upon the first continuous ultrasonic signal.

9. Puma reads upon the claim language because Puma teaches of a continuous waveform (first continuous ultrasonic signal) including a signal comprising positional information modulated thereon (second continuous ultrasonic signal, since information on the second continuous ultrasonic signal indirectly allows one to uncover positional information of the first continuous ultrasonic signal), such that the continuous ultrasonic waveform (first continuous ultrasonic signal) is decodable to extract the positional information.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 1, 36-38, 47-49, 76-77, 80-81, are rejected under 35 U.S.C. 103(a) as being unpatentable over KITADA et al. (U.S. Patent No.: 6,798,403 B2) in view of Puma et al. (U.S. Patent No.: 5,339,259).

11. **In regards to independent claim 1,** KITADA teaches of a position detection system (Fig. 2a, item 300) for use in association with computing applications (Fig. 2a, item PC), the system (Fig. 2a, item 300) comprising:

12. a positional element (Fig. 2a, item 101) for attaining a position and comprising a first emitter (Fig. 2a, item 301) for emitting an ultrasonic waveform modulated to be decodable to fix the position (column 3, lines 20-25), and

13. a detector arrangement (Fig. 2a, items 104a-b) for detecting the waveform in a manner permitting fixing of the attaineded position, the detector arrangement (Fig. 2a, items 104a-b) further outputting the waveform for computation, in a manner retentive of the positional information (column 3, lines 19-25).

14. Kitada fails to teach of a continuous waveform including a signal comprising positional information modulated thereon, such that the continuous ultrasonic waveform is decodable to extract the positional information; and

15. a detector arrangement for detecting the continuous ultrasonic waveform comprising the modulation.

16. Puma teaches of a continuous waveform including a signal comprising positional information modulated thereon, such that the continuous ultrasonic waveform is decodable to extract the positional information; and

17. a detector arrangement for detecting the continuous ultrasonic waveform comprising the modulation (Fig. 2).

18. It would have been obvious to one with ordinary skill in the art at the time the invention was made to incorporate the concept of having a continuous ultrasonic waveform containing

positional information as taught by Puma, with the position detection system of Kitada. Not only is this combination is well known in the art to utilize continuous ultrasonic waveform to detect position, but there are benefits to using this type of waveform such as interference reduction (Puma, column 1, lines 29-33).

19. **In regards to independent claim 76,** KITADA teaches of a position detection system (Fig. 2a, item 300) of a computing device (Fig. 2a, item PC), the system (Fig. 2a, item 300) comprising:

20. a positional element (Fig. 2a, item 101) for attaining a position and comprising an ultrasonic waveform emitter (Fig. 2a, item 301) for emitting an ultrasonic waveform modulated to be decodable to fix the attained position,

21. a detector arrangement (Fig. 2a, item 204a-b) for detecting the waveform in a manner permitting fixing of the position, and

22. a signal decoder (Fig. 2a, item 200) for receiving the waveform from the arrangement and decoding the attained position from the positional information, the positional information being obtained from a demodulation of the waveform (column 3, lines 19-25).

23. Kitada fails to teach of a continuous waveform including a signal comprising positional information modulated thereon, such that the continuous ultrasonic waveform is decodable to extract the positional information.

24. Puma teaches of a continuous waveform including a signal comprising positional information modulated thereon, such that the continuous ultrasonic waveform is decodable to extract the positional information (Fig. 2).

25. It would have been obvious to one with ordinary skill in the art at the time the invention was made to incorporate the concept of having a continuous ultrasonic waveform contain positional information as taught by Puma, with the position detection system of Kitada. Not only is this combination is well known in the art to utilize continuous ultrasonic waveform to detect position, but there are benefits to using this type of waveform such as interference reduction (Puma, column 1, lines 29-33).

26. **In regards to claim 36,** KITADA teaches that the system (Fig. 2a, item 300) further comprises a decoding unit (Fig. 2a, item 200) for carrying out the computation to decode the waveform and indicate the position (column 3, lines 19-25).

27. **In regards to claim 37,** KITADA teaches that the decoding unit (Fig. 2a, item 200) comprises a maximum likelihood detector (Fig. 2a, item 200) for carrying out the decoding by finding a most likely distance (column 3, lines 10-13).

28. **In regards to claim 38,** KITADA teaches that the maximum likelihood detector (Fig. 2a, item 200) comprises a channel model for modeling passage of the waveform from the positional element (Fig. 2a, item 101) to the waveform decoding unit (Fig. 2a, item 200), thereby to provide

a reference signal against which to identify the most likely distance (column 3, lines 35-40).

29. **In regards to claim 47,** KITADA teaches that the waveform decoding unit (Fig. 2a, item 200) is provided as a client program for installation in a computing device (Fig. 2a, item 300).

30. **In regards to claim 48,** KITADA teaches that the waveform decoding unit (Fig. 2a, item 200) is provided as a client program for installation in an operating system of a computing device (Fig. 2a, item PC).

31. **In regards to claim 49,** KITADA teaches that the waveform decoding unit (Fig. 2a, item 200) is integrated with the detector arrangement (Fig. 2a, item 204a-b).

32. **In regards to claim 77,** KITADA teaches that the detector arrangement (Fig. 2a, item 204a-b) and the signal decoder (Fig. 2a, item 200) are connected via an analog link.

33. **In regards to claim 80,** KITADA teaches that the detection arrangement (Fig. 2a, items 204a-b) comprises a plurality of signal detectors (Fig. 2a, items 204a-b) arranged at different locations each separately to detect the waveform, thereby to provide the position fixing as differential information between the detected signals (Fig. 2a).

34. **In regards to claim 81,** KITADA teaches that the signal decoder (Fig. 2a, item 200) comprises at least one reference signal constructed using a model of the system and a maximum

likelihood detector (Fig. 2a, item 200) for determining a most likely position based on the reference signal (column 3, lines 35-40).

35. Claims 39, 82, are rejected under 35 U.S.C. 103(a) as being unpatentable over KITADA et al. (U.S. Patent No.: 6,798,403 B2) in view of Puma et al. (U.S. Patent No.: 5,339,259) and XU (U.S. Publication No.: 2002/0176577 A1).

36. **In regards to claims 39, 82,** KITADA and Puma fails to teach that the detector is followed by a correlator for confirming the most likely distance.

37. XU teaches that the detector is followed by a correlator for confirming the most likely distance (section [0028]).

38. It would have been obvious to one with ordinary skill in the art at the time the invention was made to include a correlator for confirmation as taught by XU with the detector of KITADA and the continuous waveform of Puma, in order to authenticate the information being detected, such as the position or a signature (XU, section [0001]).

Conclusion

39. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

40. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

41. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tammy Pham whose telephone number is (571) 272-7773. The examiner can normally be reached on 8:00-5:30 (Mon-Fri).

42. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

43. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TP
5 January 2010

Tammy Pham
/Tammy Pham/
Examiner, Art Unit 2629

/Sumati Lefkowitz/
Supervisory Patent Examiner, Art Unit 2629